EE211
PRINCIPLES OF MICROECONOMICS

Topic 8 (Part 1):

Market Structure – Competitive Markets

Topics

- Market Structure
- Perfect Competition
  - Nature of Demand, TR, MR, and AR
  - Short-run Equilibrium
  - Derivation of Firm's and Market's Short-Run Supply Curves
  - Long-run Equilibrium

Types of Market Structure

- Perfect competition
  - Many firms & (almost) identical products
  - Ex: Rice, milk, salt
- Monopolist competition
  - Many firms & differentiated products
  - Ex: Movies, coffee
- Oligopoly
  - Few firms
  - Ex: Internet providers,
- Monopoly
  - One firm
  - Ex: Electricity,

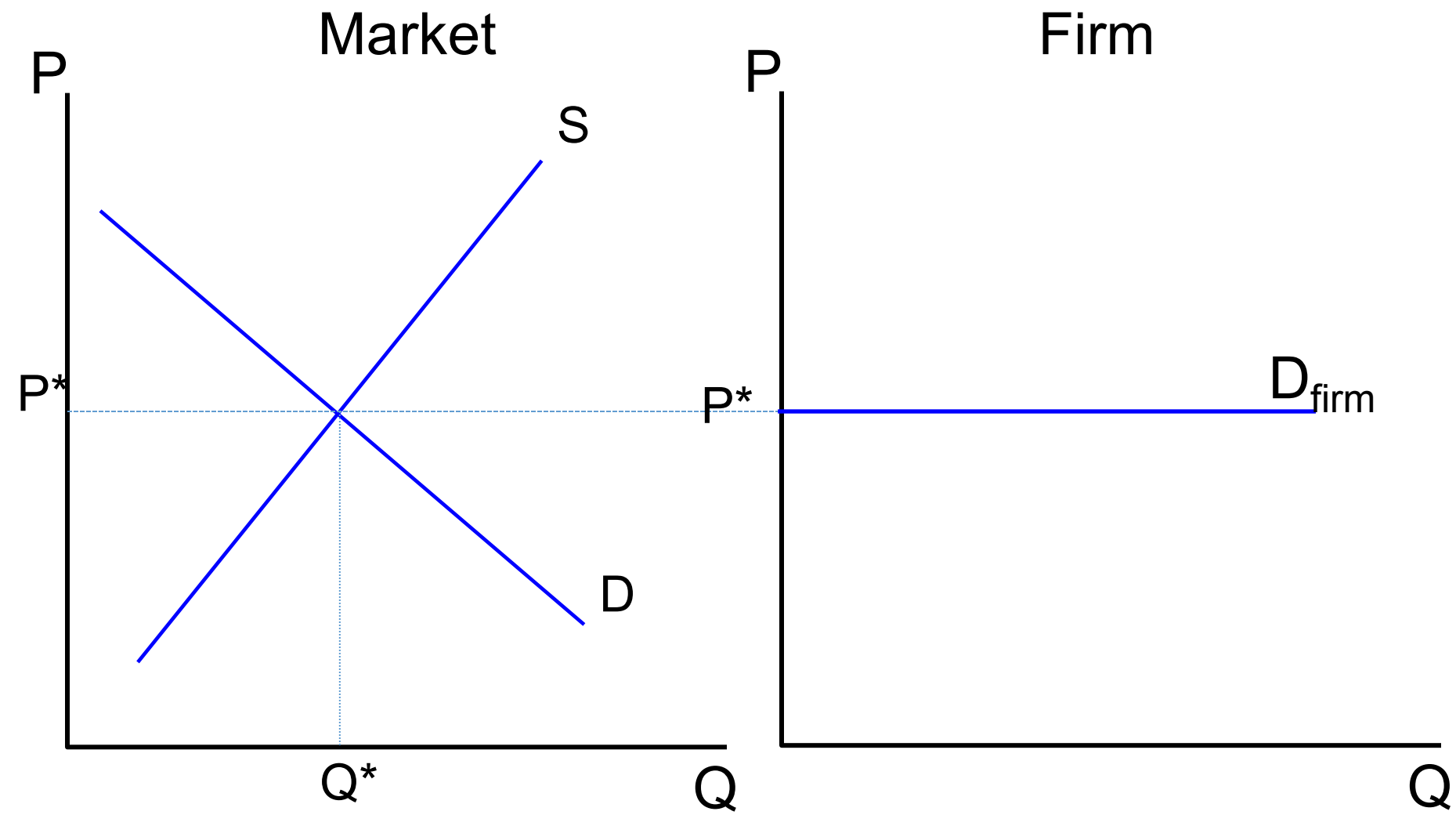
Perfect Competition

Key assumptions:

1. All firms sell a homogenous product.
2. There are many buyers and sellers (i.e. firms are small relative to the size of the industry).
3. Buyers have complete information.
4. Free entry and exit

- Assumptions 1-3 ➔ each firm is a "price taker".

Market's and Firm's Demand Curves in Competitive Market



TR, AR, and MR

- Total Revenue:

$$TR = P \times Q$$

- Average Revenue:

$$AR = \frac{TR}{Q} = P$$

- Marginal Revenue:

$$MR = \frac{\Delta TR}{\Delta Q}$$

Example:

P	Q	TR	AR	MR
$10	0			
$10	1			
$10	2			
$10	3			
$10	4			
$10	5			

Short-Run Decisions

- Rules for all profit-maximizing firms:

Rule1: Firms should not produce at all if, for all levels of output, TR < TVC (i.e. P < AVC).

- Firms shut down if P < AVC.

Rule 2: If it is worthwhile for the firm to produce at all, the firm should produce the output at which MR = MC. (Why is this so?)

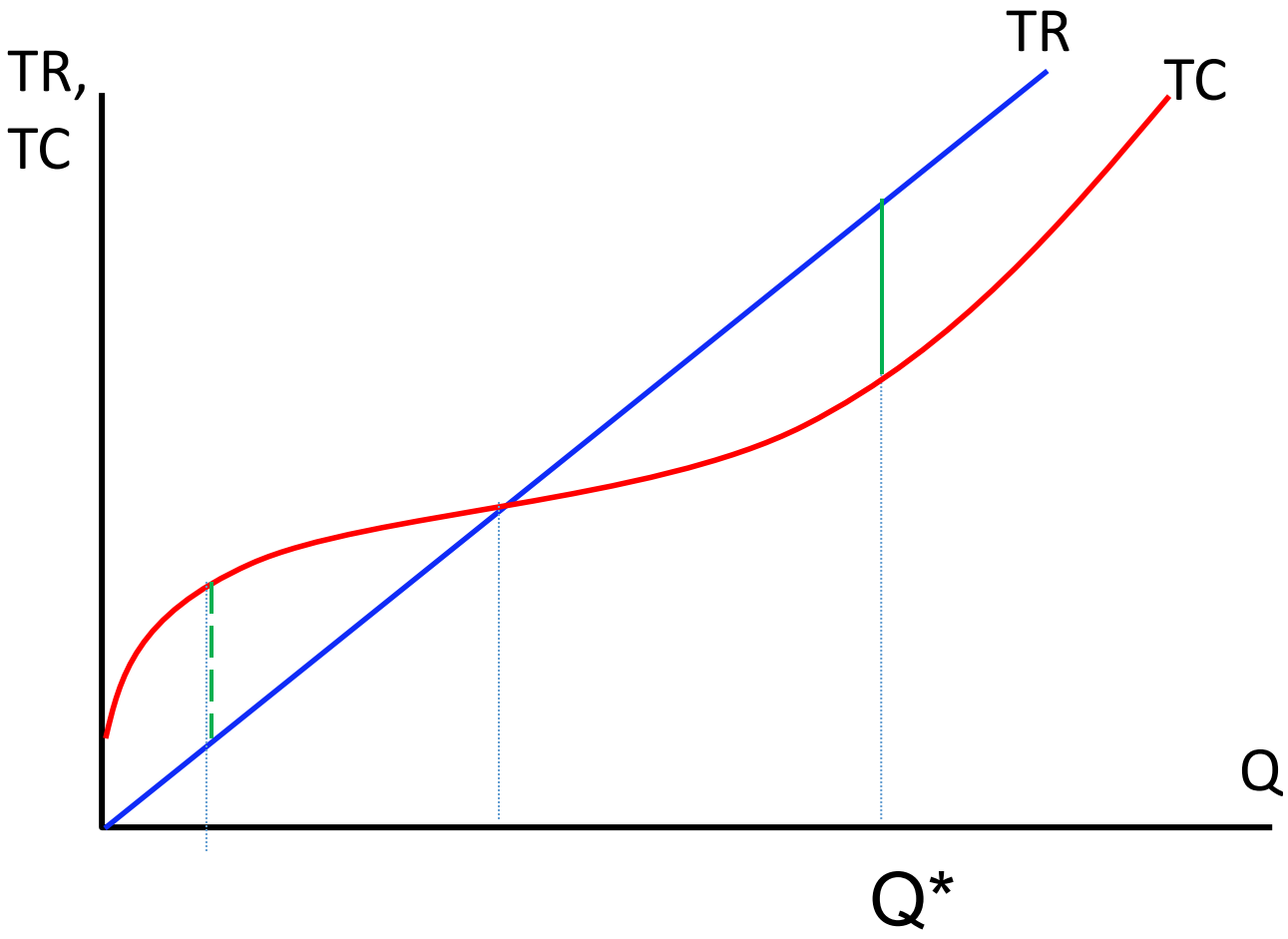
- For a firm in a perfectly competitive market, it maximizes output when P = MC.

Example (Continued):

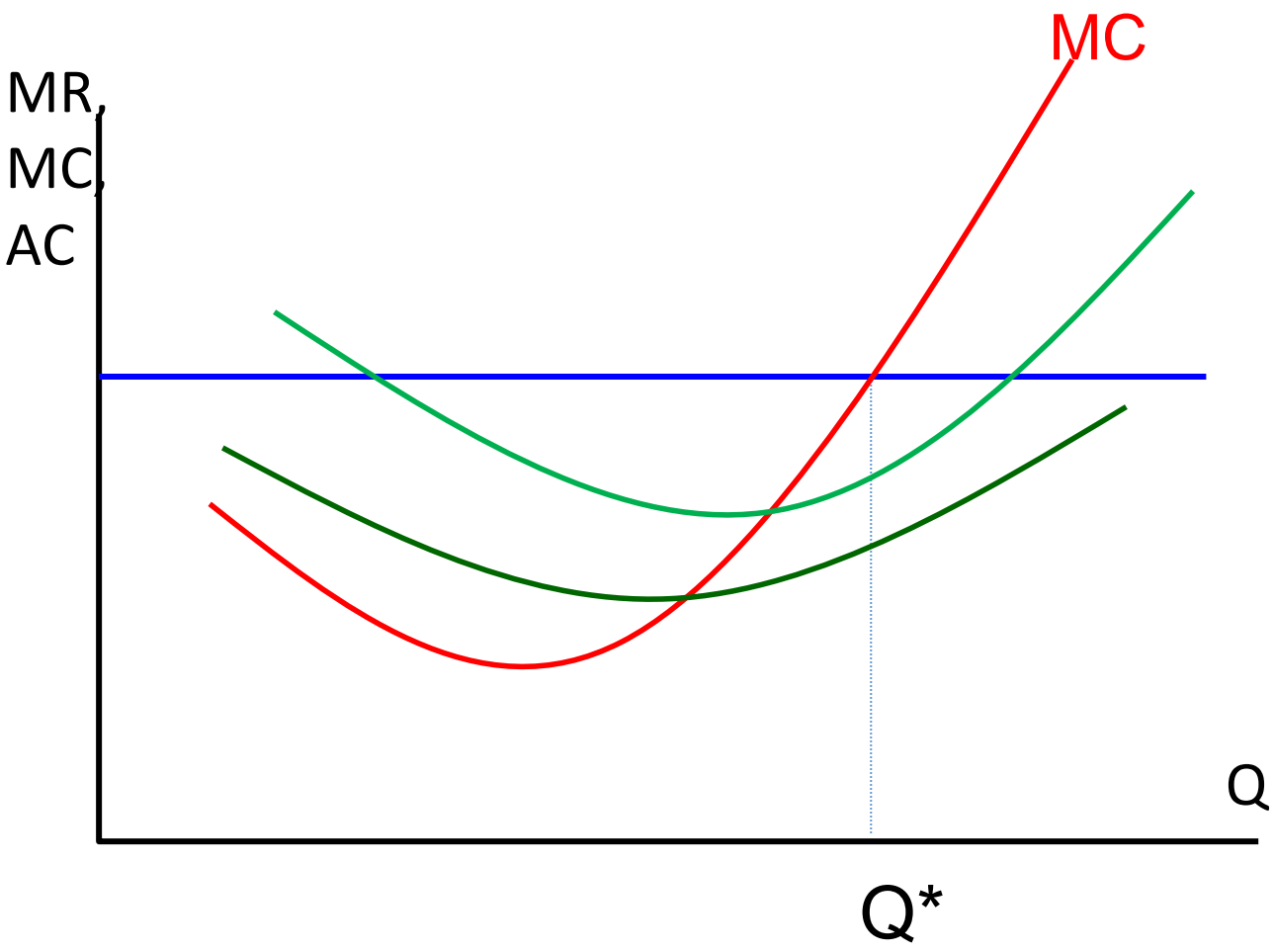
P	Q	TR	TC	Profit	MR	MC	MR-MC
$10	0	0	5				
$10	1	10	9				
$10	2	20	15				
$10	3	30	23				
$10	4	40	33				
$10	5	50	45				

Graph (from the previous example)

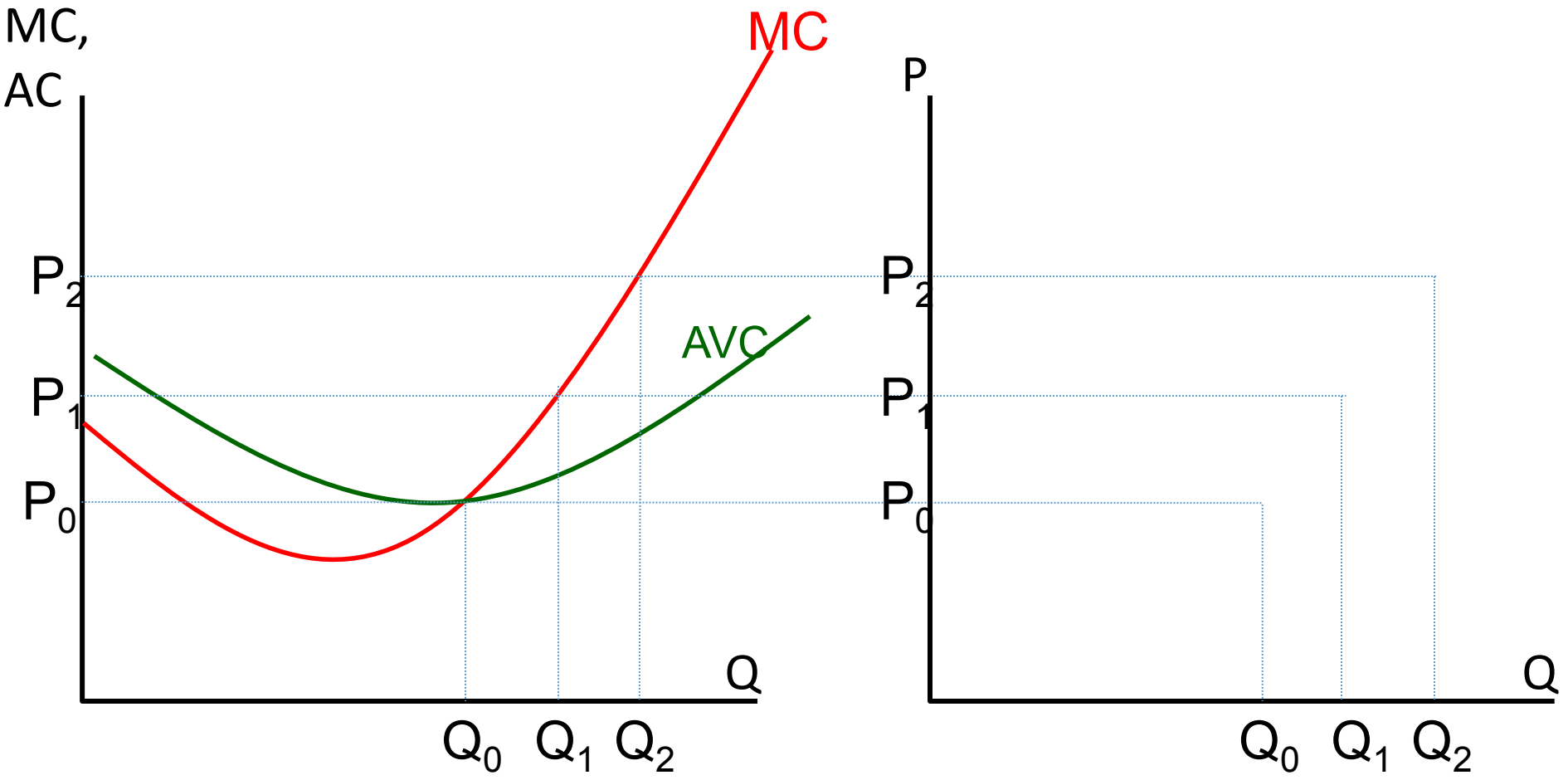
Profit Maximization Using TR&TC



Profit Maximization: MR-MC Approach



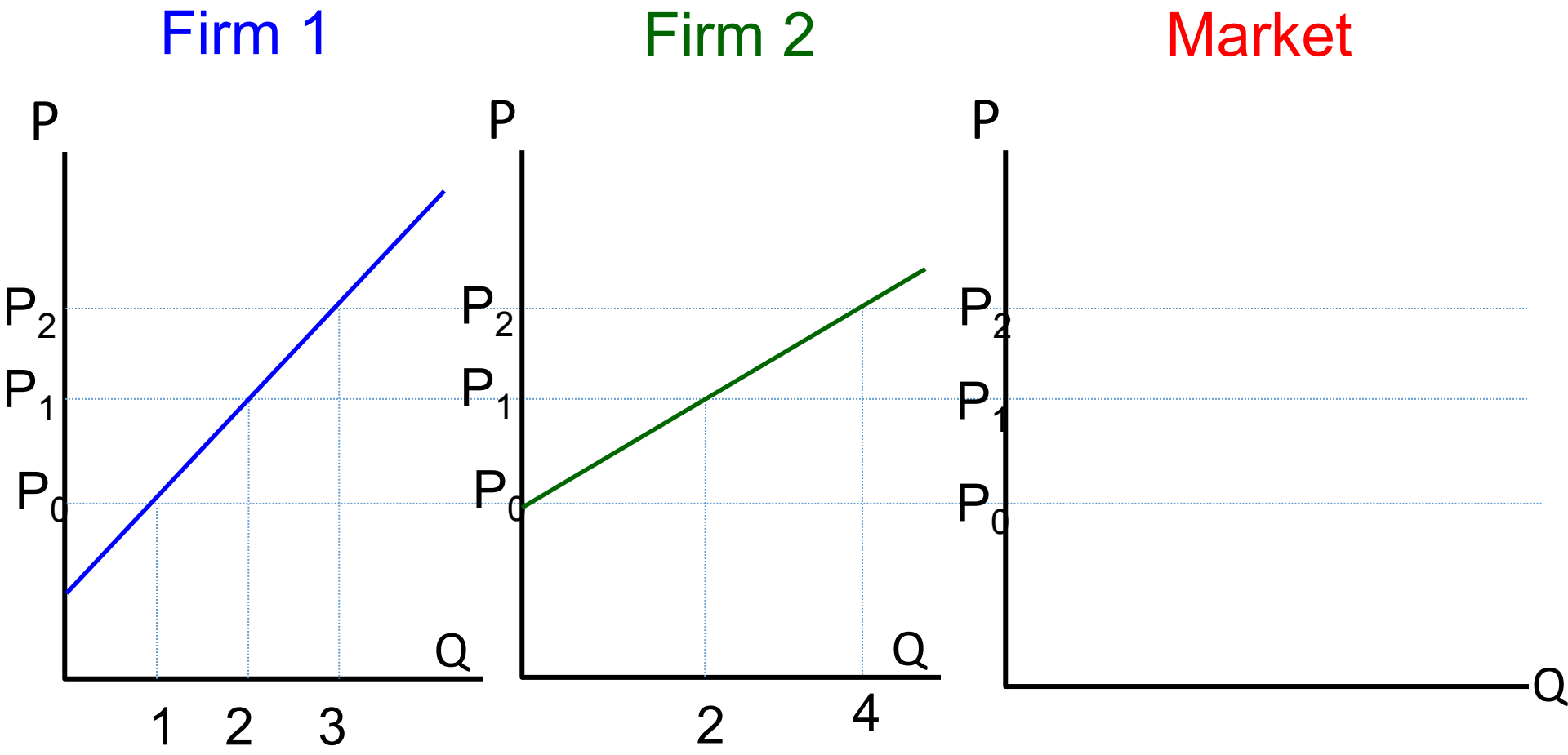
Firm's Short-Run Supply Curve



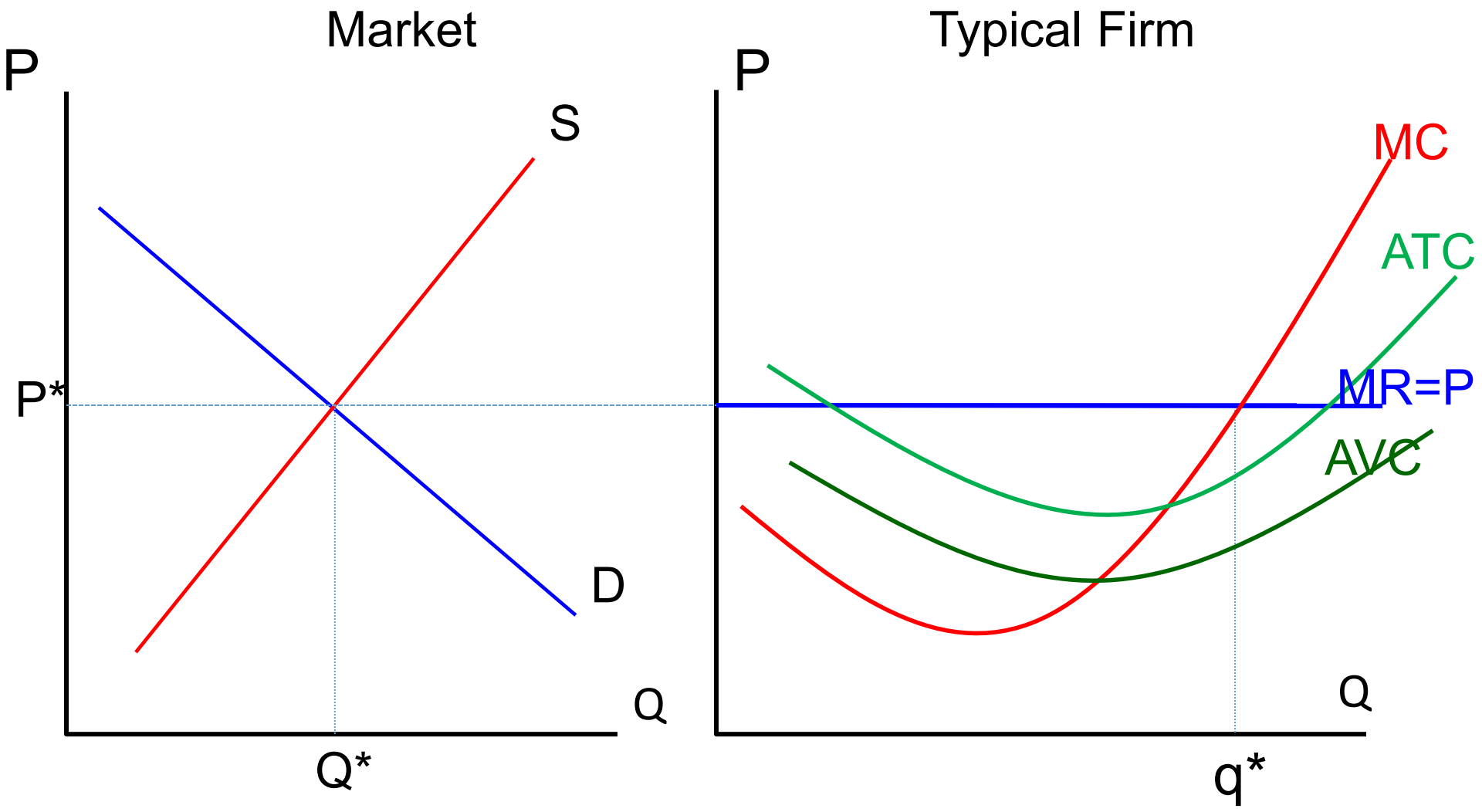
Applications

- What would happen to AVC and MC curves if:
  - Firm is charged a lump-sum tax (e.g. property tax) of T_0?
  - Firm is changed a per-unit tax (say, $5 per unit)?

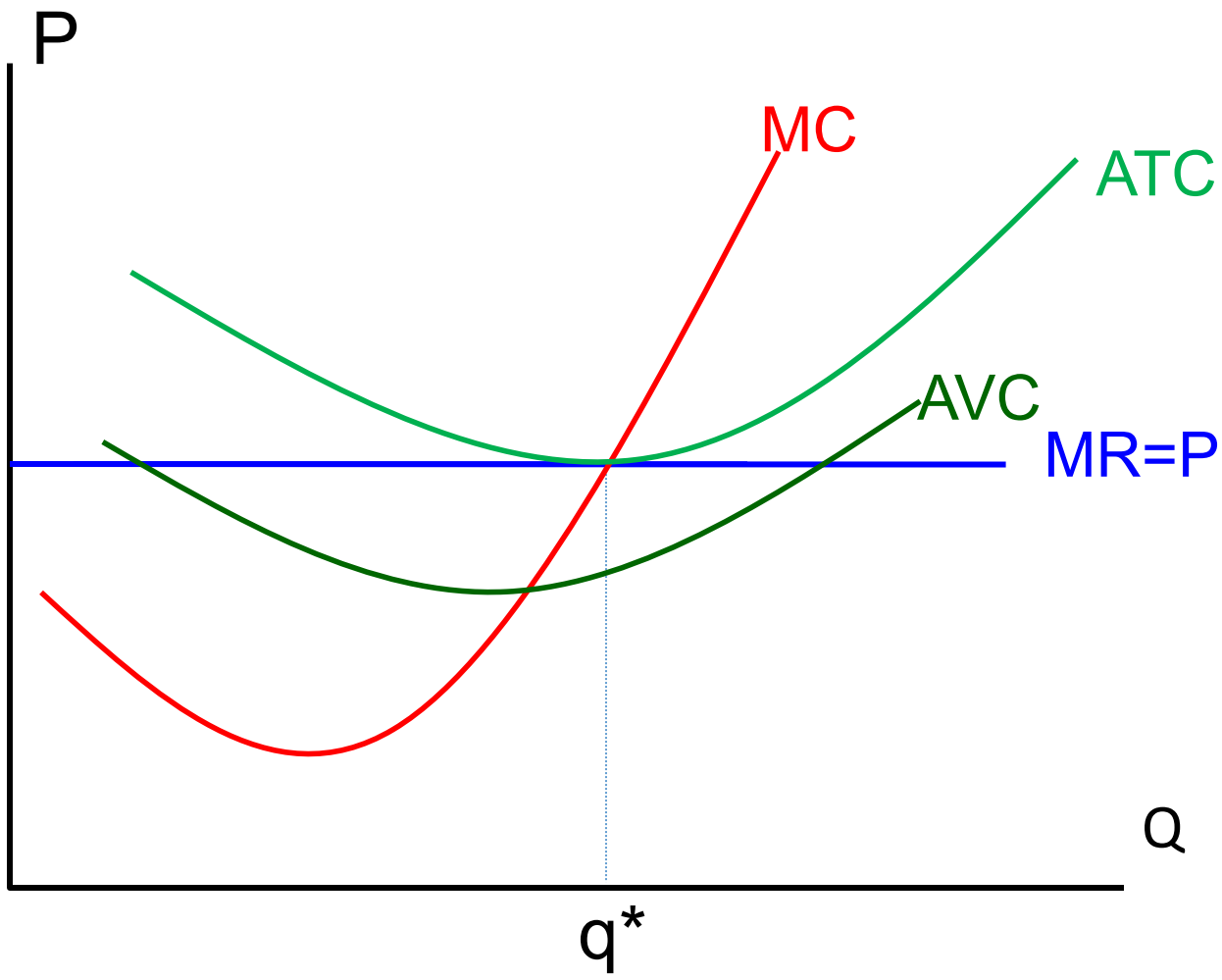
Market Supply Curve



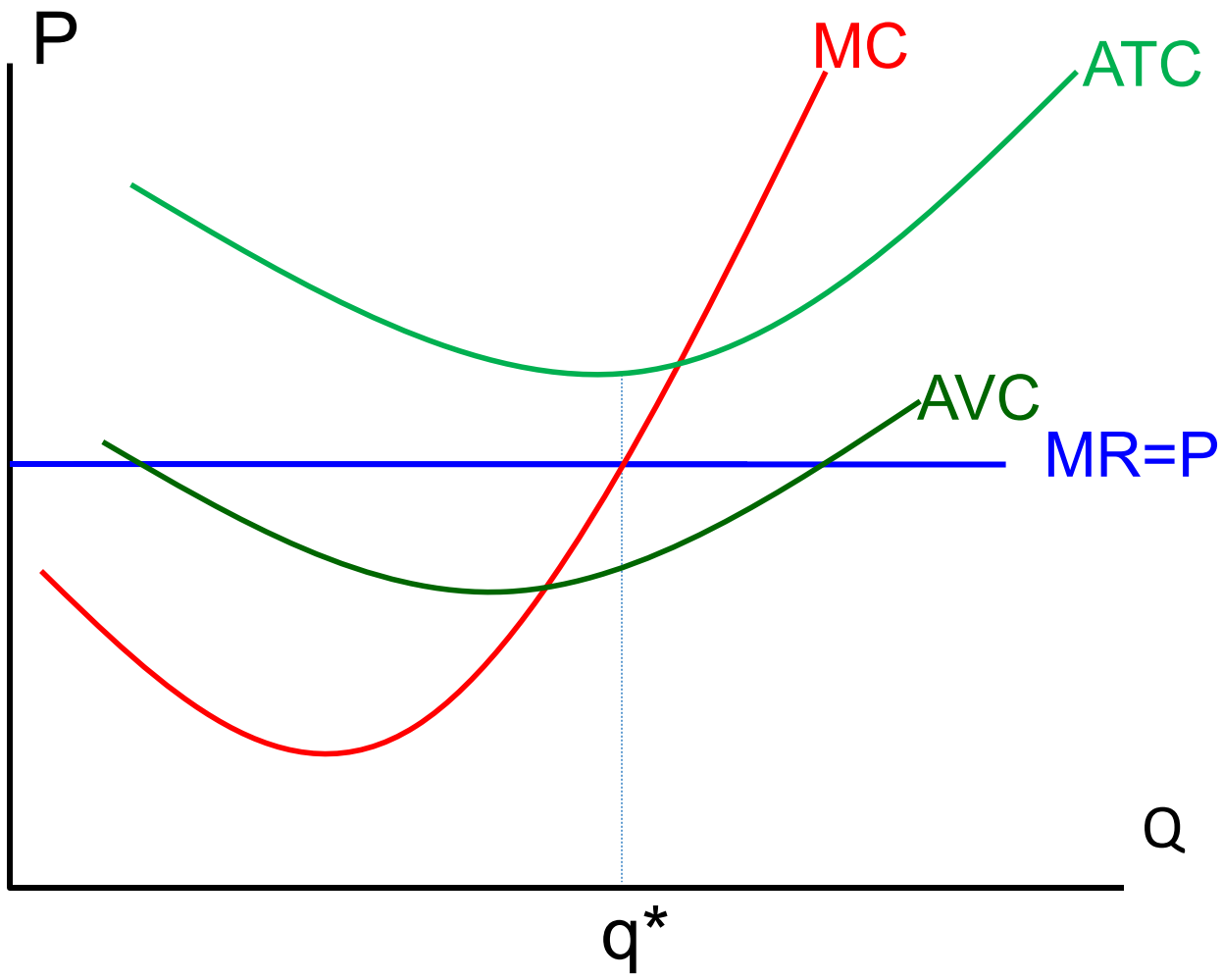
Short-Run Equilibrium: Positive Profit



Short-Run Equilibrium: Zero Profit



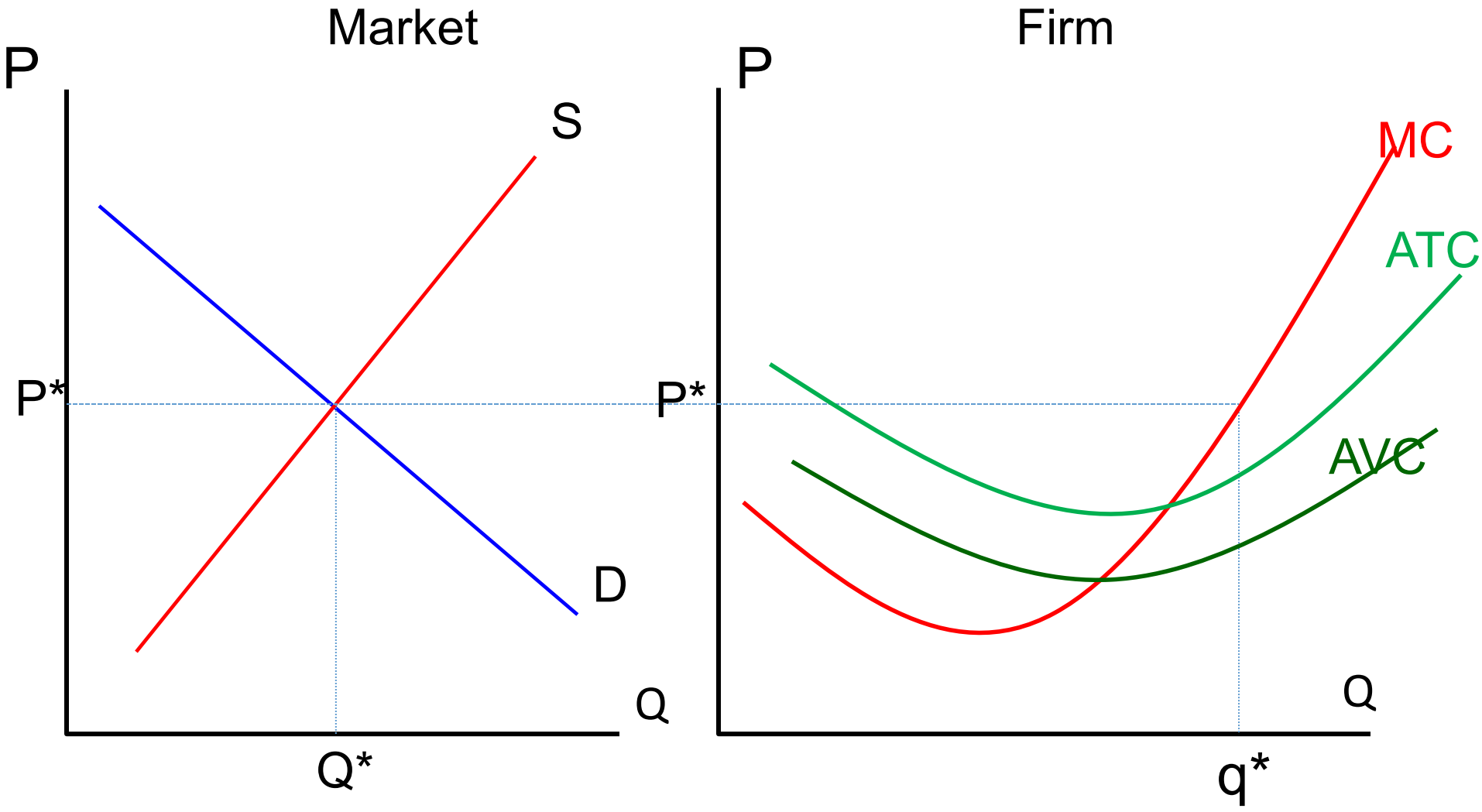
Short-Run Equilibrium: Negative Profit



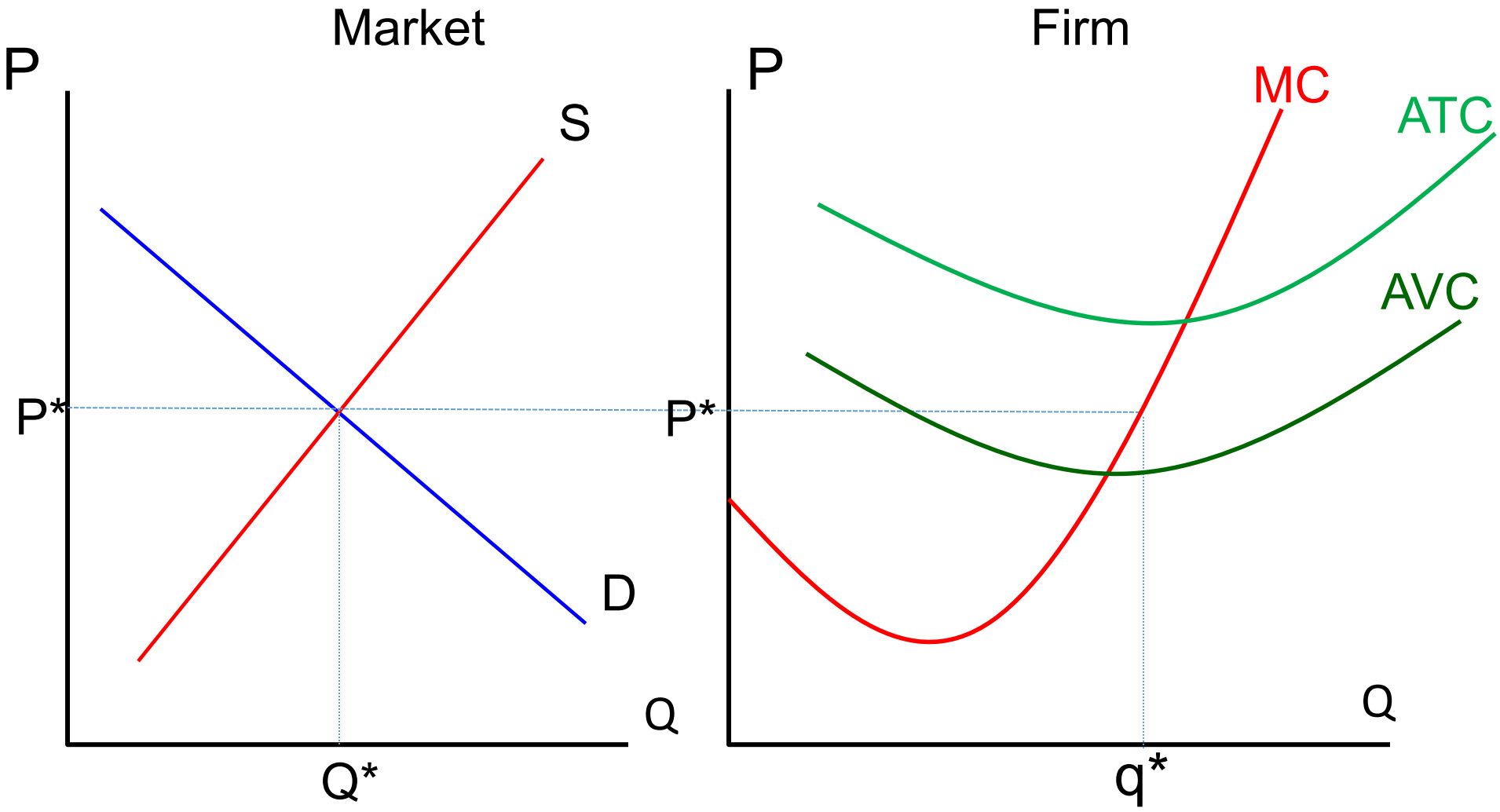
Long-Run Decisions

- In the long-run, the number of firms can change due to entry & exit.
- If existing firms earn positive economic profit,
  - New firms enter.
  - SR market supply curve shifts right.
  - P falls, reducing firms' profits.
  - Entry stops when firms' economic profits have been driven to zero.
- If existing firms incur losses,
  - Some firms will exit the market.
  - SR market supply curve shifts left.
  - P rises, reducing remaining firms' losses.
  - Exit stops when firms' economic losses have been driven to zero.

New Entrants Attracted by Positive Profits



Exits Caused by Losses

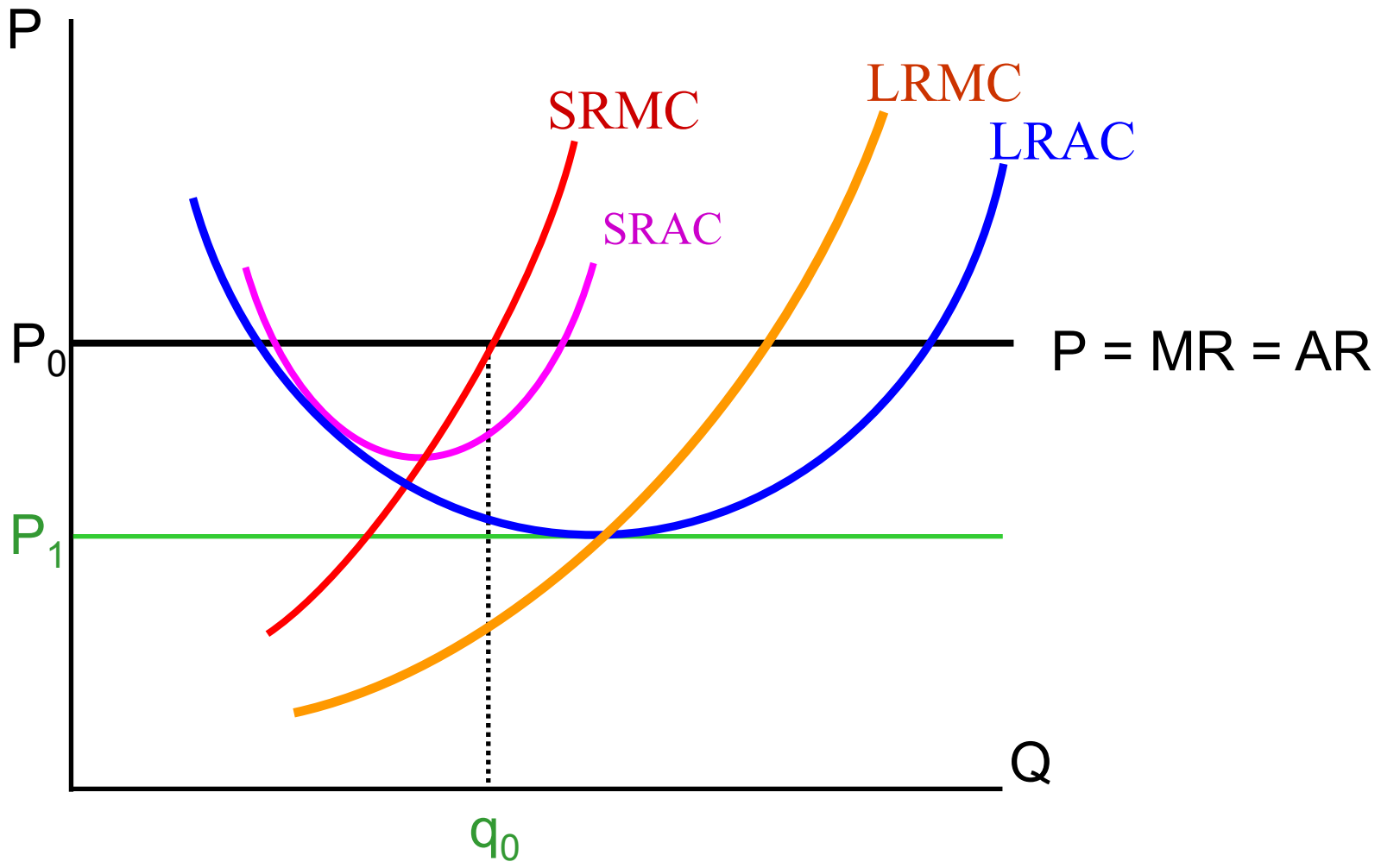


Long-Run Equilibrium

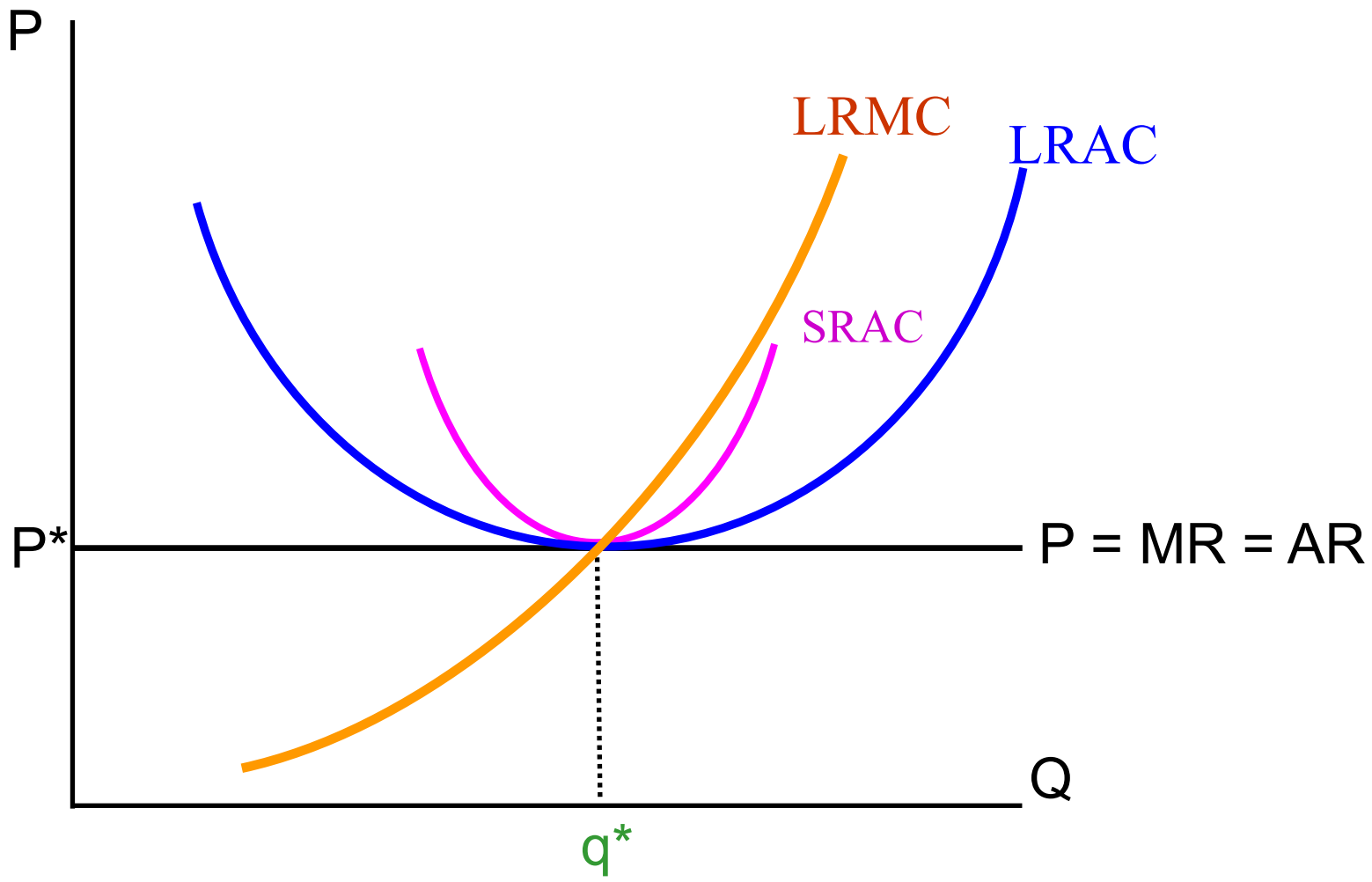
Conditions for a competitive market to be in a long-run equilibrium:

- Existing firms must be maximizing their profits.
  - P = MC
- Existing firms must not be suffering losses.
  - Not having negative profits
- Existing firms must not be earning profits.
  - Each receives normal profit (economic profit = 0).
- Each existing firm must be at the minimum point of its LRAC curve.
  - Unable to increase profits by changing size of the production.

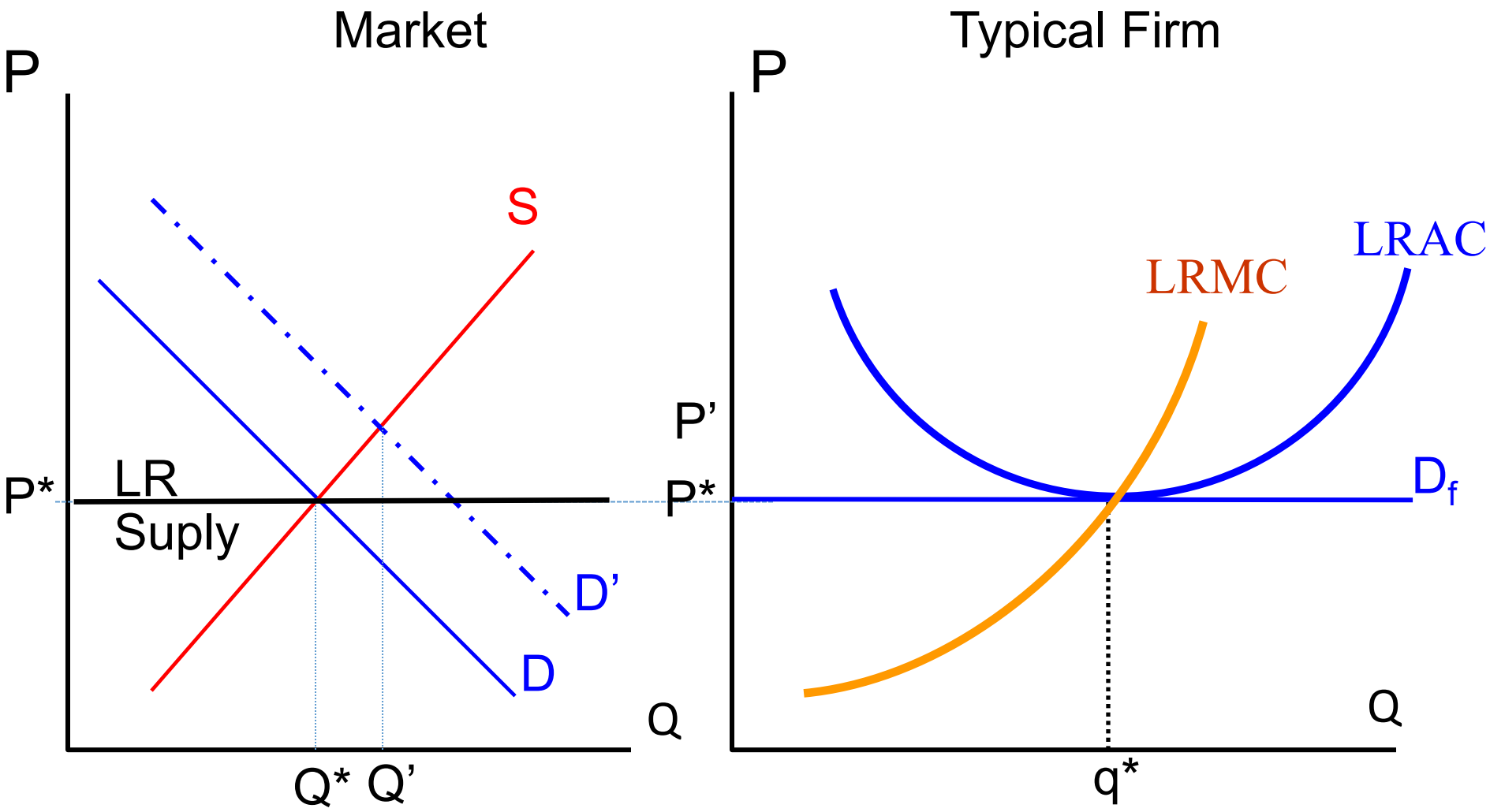
SR vs. LR Profit Maximization



Long-Run Equilibrium for A Competitive Firm



SR & LR Effects of An Increase in Demand (Constant Cost)



SR & LR Effects of An Increase in Demand (Increasing Cost)